

IN THE CLAIMS

Claims 1-28 (canceled).

29. (currently amended) Artificial urinary diversion apparatus extending in a longitudinal direction comprising a first ~~area-portion~~ having a plurality of first cross-sectional areas perpendicular to said longitudinal direction including at least one largest first cross-sectional area and a first outer surface, a second ~~area-portion~~ having a plurality of second cross-sectional areas perpendicular to said longitudinal direction including at least one largest second cross-sectional area and a second outer surface, and a third ~~area-portion~~ having a plurality of third cross-sectional areas perpendicular to said longitudinal direction including at least one largest third cross-sectional area and a third outer surface, said second ~~area-portion~~ being disposed between said first ~~area-portion~~ and said third ~~area-portion~~, said first ~~area-portion~~ including at least one outlet, said third ~~area-portion~~ including at least one inlet, said at least one largest second cross-sectional area being smaller than said at least one largest third cross-sectional area~~at least one of said plurality of first and second cross-sectional areas being smaller than at least one of said plurality of third cross-sectional areas and at least one of said plurality of first cross-sectional areas being greater than at least one of said plurality of second cross-sectional areas~~, a sphincter mechanism for opening and closing said outlet, and control means for controlling said sphincter mechanism enclosed entirely within said artificial urinary diversion apparatus defined by said first, second and third outer surfaces, said first, second and third outer surfaces comprising a first outline of said apparatus having a shape in a plane parallel to said longitudinal direction corresponding to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is greater than 0 and less than 2, a_1 is greater than 0 and less than 8, a_2 is less than 0 and greater than -2, a_3 is greater than 0 and less than 1, a_4 is less than 0 and greater than -0.1, a_5 is greater than 0 and less than 0.003, and a_6 is greater than -0.00001 and less than 0 and x is greater than 0 and less than 22.

Claims 30-66 (canceled).

67. (previously presented) The artificial urinary diversion apparatus of claim 29 wherein said first, second and third outer surfaces comprise a second outline of said apparatus having a shape in a plane parallel to said longitudinal direction which corresponds to the 6th polynomial function

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

wherein A is greater than 0 and less than 2, a_1 is greater than 0 and less than 8, a_2 is less than 0 and greater than -2, a_3 is greater than 0 and less than 1, a_4 is less than 0 and greater than -0.1, a_5 is greater than 0 and less than 0.003, and a_6 is greater than -0.00001 and less than 0 and x is greater than 0 and less than 22.

68. (currently amended) The artificial urinary diversion apparatus of claim 67 wherein said first, second and third ~~areas~~ portions are integrally formed.

69. (new) The artificial urinary diversion apparatus of claim 29 wherein said at least one largest first cross-sectional area is larger than said at least one largest second cross-sectional area.

70. (new) The artificial diversion apparatus of claim 29 including a pump enclosed entirely within said artificial urinary diversion apparatus.

71. (new) The artificial urinary diversion apparatus of claim 29 wherein each of said first, second and third areas comprises a modular unit having said first, second and third

outer surfaces adapted to provide a continuous outer surface for said apparatus.

72. (new) The artificial urinary diversion apparatus of claim 29 including fluid guide means for guiding a fluid directly from said third area to said first area through said second area.

73. (new) The artificial urinary diversion apparatus of claim 29 including a pump.

74. (new) The artificial urinary diversion apparatus of claim 73 wherein said pump is disposed in said third area.

75. (new) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a telescopic pump.

76. (new) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a lever pump.

77. (new) The artificial urinary diversion apparatus of claim 76 wherein said lever pump is contained within two of said first, second and third areas.

78. (new) The artificial urinary diversion apparatus of claim 74 wherein said pump comprises a screw pump.

79. (new) The artificial urinary diversion apparatus of claim 78 wherein said screw pump is located within said first area.

80. (new) The artificial urinary diversion apparatus of claim 79 wherein said screw pump comprises a plurality of screws, including at least one screw which is capable of being moved laterally.

81. (new) The artificial urinary diversion apparatus of claim 29 wherein said sphincter mechanism is disposed in said first area.

82. (new) The artificial urinary diversion apparatus of claim 29 including a sensor for sensing the filling level of said apparatus.

83. (new) The artificial urinary diversion apparatus of claim 82 including alarm means for providing an alarm based on said filling level sensed by said sensor.

84. (new) The artificial urinary diversion apparatus of claim 83 wherein said alarm means comprises a sound or seismic alarm signal.

85. (new) The artificial urinary diversion apparatus of claim 82 wherein said sensor is controlled by the nerves responsible for the control of a normal bladder.

86. (new) The artificial urinary diversion apparatus of claim 29 including a power supply.

87. (new) The artificial urinary diversion apparatus of claim 86 wherein said power supply includes an external recharge device and an internal recharge responsive device cooperating with said external recharge device.

88. (new) The artificial urinary diversion apparatus of claim 87 wherein said internal recharge responsive device cooperates inductively with said external recharge device.

89. (new) The artificial urinary diversion apparatus of claim 86 wherein said power supply comprises primary battery means.

90. (new) The artificial urinary diversion apparatus of claim 89 wherein said primary battery means is integrated into said apparatus.

91. (new) The artificial urinary diversion apparatus of claim 29 including expulsion means for expelling liquid from said apparatus.

92. (new) The artificial urinary diversion apparatus of claim 29 wherein said third area comprises a plurality of said third areas.

93. (new) The artificial urinary diversion apparatus of claim 92 wherein said plurality of third areas are movably disposed with respect to each other.

94. (new) The artificial urinary diversion apparatus of claim 29 wherein said third area includes a pair of said inlets.

95. (new) The artificial urinary diversion apparatus of claim 29 including at least one anti-reflux valve.

96. (new) The artificial urinary diversion apparatus of claim 95 including a plurality of said anti-reflux valves.

97. (new) The artificial urinary diversion apparatus of claim 95 wherein said anti-reflux valve is contained within said third area.

98. (new) The artificial urinary diversion apparatus of claim 29 including a fixing element for fixing said apparatus in a human body.

99. (new) The artificial urinary diversion apparatus of claim 98 including connection means for connecting said fixing element to said apparatus.

100. (new) The artificial urinary diversion apparatus of claim 99 wherein said connection means comprises a dovetail joint.

101. (new) The artificial urinary diversion apparatus of claim 99 wherein said connection means comprises guide rail means for movably locking said fixing element at a predetermined location with respect to said apparatus.

102. (new) The artificial urinary diversion apparatus of claim 101 wherein said guide rail means is integrated into said third area.

103. (new) The artificial urinary diversion apparatus of claim 98 wherein said fixing element includes an expandable member for altering the shape of said fixing element.

104. (new) The artificial urinary diversion apparatus of claim 103 wherein said expandable member is entirely included within said fixing member.

105. (new) The artificial urinary diversion apparatus of claim 103 wherein said fixing element comprises a biocompatible elastic material.

106. (new) The artificial urinary diversion apparatus of claim 105 wherein said biocompatible elastic material comprises silicone.